FluWatch

Public Health Agency of Canada | Agence de la santé publique du Canada

January 22 to January 28, 2012 (Week 04)

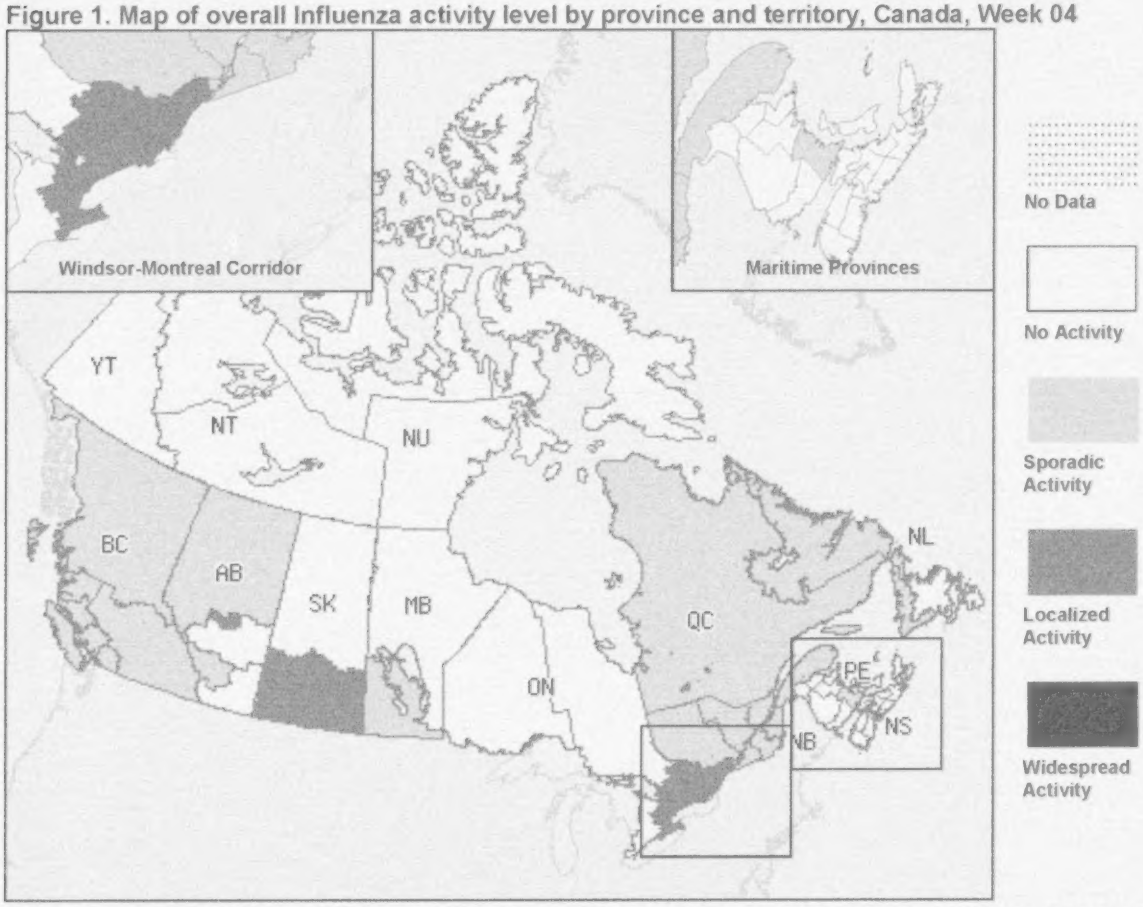
Overall Influenza Summary

- Influenza activity has increased in more regions compared to previous weeks
- Seven regions reported localized influenza activity and 17 regions reported sporadic influenza activity
- Eleven outbreaks of influenza were reported this week (7 in LTCFs, 2 in schools and 2 others)
- In week 04, 178 laboratory detections of influenza were reported (65 A/H3, 27 A(H1N1)pdm09, 43 A unsubtyped and 43 B)
- Twenty-two influenza-associated hospitalizations were reported this week (3 paediatric and 19 adult)
- The national ILI consultation rate increased this week compared to the previous two weeks but remains within expected levels for this time of year.

Influenza Activity (geographic spread) and Outbreaks

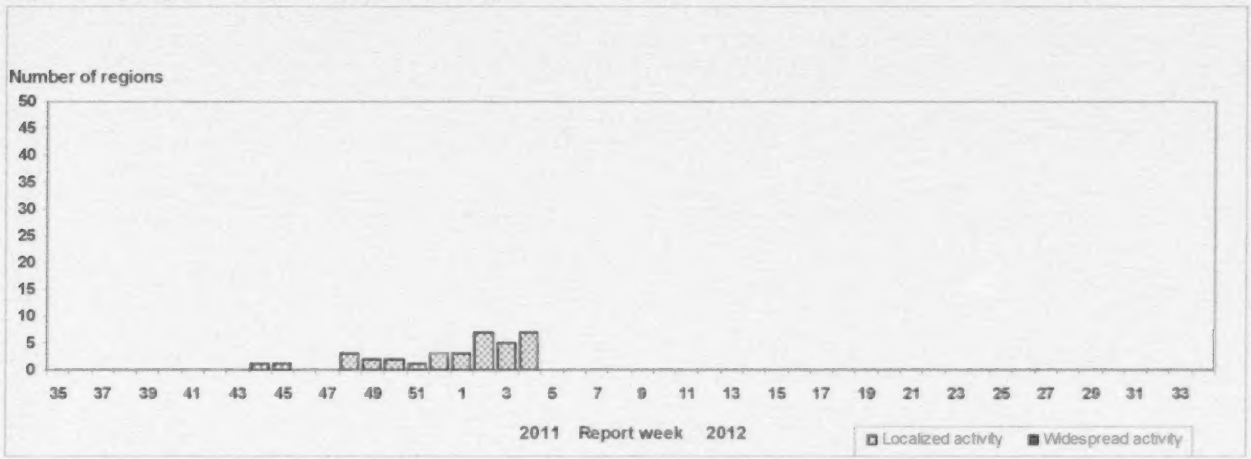
In week 04, seven surveillance regions (within AB, SK & ON) reported localized activity and 17 regions (within BC, AB, MB, QC, NB & NL) reported sporadic influenza activity (see Figure 1). Eleven outbreaks of influenza were reported this week: 7 in long-term care facilities (6 in ON & 1 in MB), 2 in schools (in SK & PE!) and 2 others (in AB & ON) (Figure 3).

Figure 1. Map of overall Influenza activity level by province and territory, Canada, Week 04



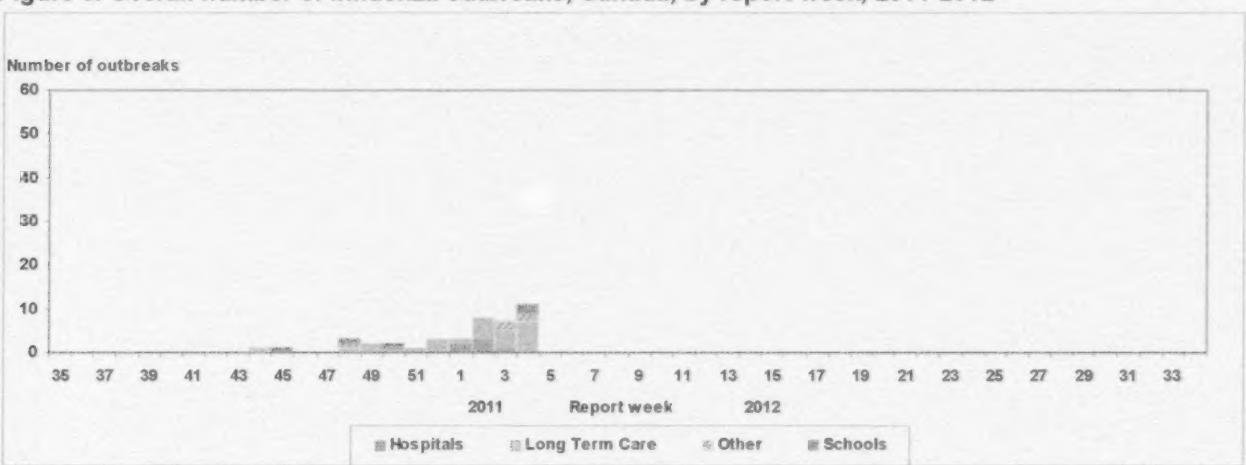
Note: Influenza activity levels, as represented on this map, are assigned and reported by Provincial and Territorial Ministries of Health, based on laboratory confirmations, sentinel ILI rates (see graphs and tables) and reported outbreaks. Please refer to detailed definitions on the last page. For areas where no data is reported, late reports from these provinces and territories will appear on the FluWatch website.

Figure 2. Number of influenza surveillance regions† reporting widespread or localized influenza activity, Canada, by report week, 2011-2012 (N=56)



† sub-regions within the province or territory as defined by the provincial/territorial epidemiologist. Graph may change as late returns come in.

Figure 3. Overall number of influenza outbreaks, Canada, by report week, 2011-2012



Influenza and Other Respiratory Virus Detections

In week 04, the proportion of positive influenza tests increased slightly this week compared to the previous week (4.7% or 178/3,768) (Figure 4 & 5). Although the majority of influenza virus detections since the start of the season were for influenza A viruses, the number of influenza B virus detections have been increasing over recent weeks. To date this season, the provinces with the highest proportion of influenza B detections compared to influenza A detections include: NL, ON & QC.

The proportion of influenza virus detections by type/subtype this season to date is as follows: 78.8% influenza A (69.3% - A(H3); 10.5% - A(H1N1)pdm09; 20.2% - unsubtyped) and 21.2% influenza B (Table 1).

Detailed information on age and type/subtype were received on 642 cases between August 28, 2011 to January 21, 2012 (Table 2). The proportions of cases by age group are as follows: 20.9% were < 5 years; 10.1% were between 5-19 years; 24.9% were between 20-44 years; 14.3% were between 45-64 years of age; and 29.8% were >= 65 years.

In week 04, the proportion of tests positive for RSV declined slightly from the previous week (17.0%) but remains the most prevalent among the other respiratory viruses being detected. The highest percent positives for RSV were reported in NB, QC, NS & AB. The proportion of positive tests for the other respiratory viruses either remained similar to, or declined slightly from, the previous week (rhinovirus-5.7%; parainfluenza-2.1%; adenovirus-3.7%; hMPV-5.5%; coronavirus-6.4%) (Figure 5). For more details, see the weekly Respiratory Virus Detections in Canada report.

Table 1. Weekly & Cumulative numbers of positive influenza specimens by Provincial Laboratories, Canada, 2011-2012

Reporting provinces	January 22 to January 28, 2012						Cumulative (August 28, 2011 to January 28, 2012)					
	Influenza A					B	Influenza A					B
	A Total	A(H1)	A(H3)	Pand H1N1	A (UnS)*	Total	A Total	A(H1)	A(H3)	Pand H1N1	A (UnS)*	Total
BC	21	0	21	0	0	6	221	0	220	1	0	17
AB	42	0	26	4	12	2	169	0	148	6	15	15
SK	17	0	13	1	3	0	81	0	71	1	9	1
MB	1	0	0	0	1	0	6	0	2	0	4	1
ON	31	0	4	22	5	19	116	0	38	61	17	77
QC	23	0	1	0	22	10	104	0	4	4	96	53
NB	0	0	0	0	0	0	0	0	0	0	0	1
NS	0	0	0	0	0	0	0	0	0	0	0	0
PE	0	0	0	0	0	0	0	0	0	0	0	0
NL	0	0	0	0	0	6	0	0	0	0	0	22
Canada	135	0	65	27	43	43	697	0	483	73	141	187

*Unsubtyped: The specimen was typed as influenza A, but no test for subtyping was performed. Specimens from NT, YT, and NU are sent to reference laboratories in other provinces. Note: Weekly data is based on week of positive lab detection. Cumulative data includes updates to previous weeks; due to reporting delays, the sum of weekly report totals do not add up to cumulative totals.

Table 2. Weekly & Cumulative numbers of positive influenza specimens by age groups reported through case-based laboratory reporting, Canada, 2011-2012*

Age groups	Weekly (Jan. 15 to Jan. 21, 2012)					Cumulative (Aug. 28, 2011 to Jan. 21, 2012)				
	Influenza A				B	Influenza A				B
	A Total	Pandemic H1N1	A/H3N2	A unsubtyped	Total	A Total	Pandemic H1N1	A/H3N2	A unsubtyped	Total
<5	11	1	5	5	2	100	23	57	20	34
5-19	6	0	6	0	1	55	2	50	3	10
20-44	14	0	12	2	5	136	8	106	22	24
45-64	12	0	7	5	3	78	3	62	13	14
65+	24	0	18	6	2	168	4	138	26	23
Unknown	0	0	0	0	0	0	0	0	0	0
Total	67	1	48	18	13	537	40	413	84	105

*Please note that this table reflects the number of specimens for which demographic information was reported. These represent a subset of all positive influenza cases reported. Delays in the reporting of data may cause data to change retrospectively. NOTE: this table has not been updated to reflect data received for week 04.

Figure 4. Influenza tests reported and percentage of tests positive, Canada, by report week, 2011-2012

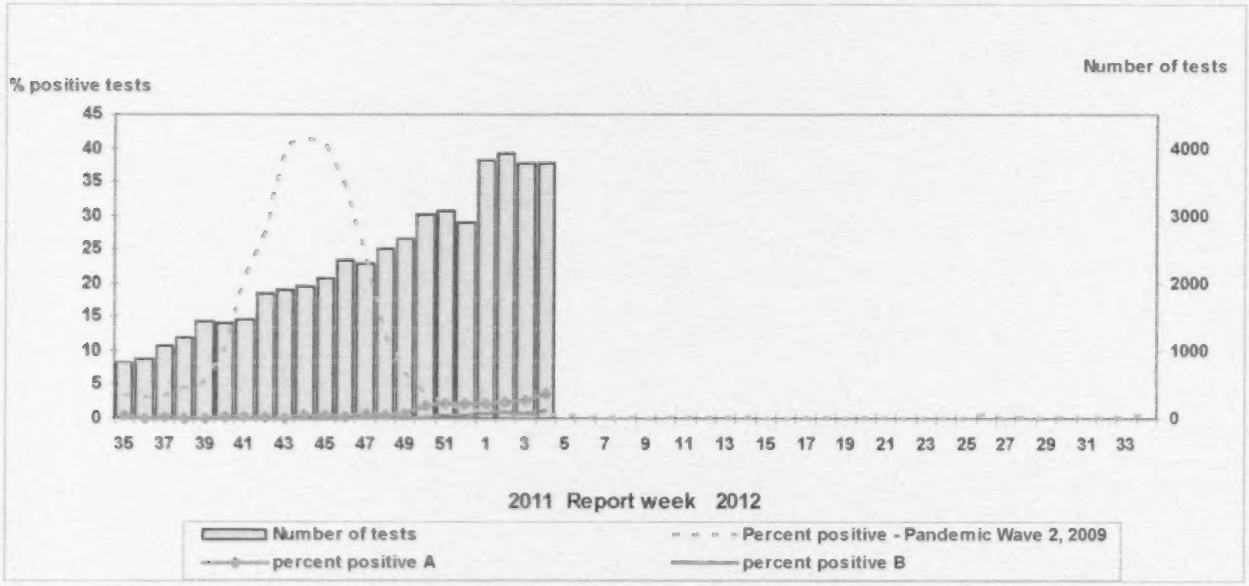
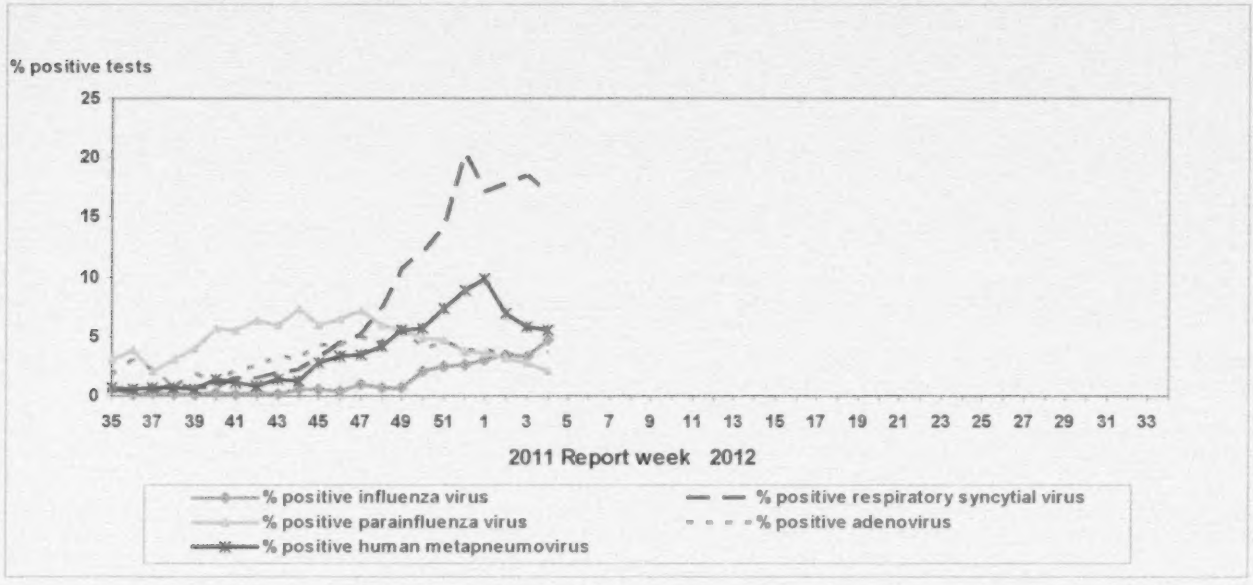


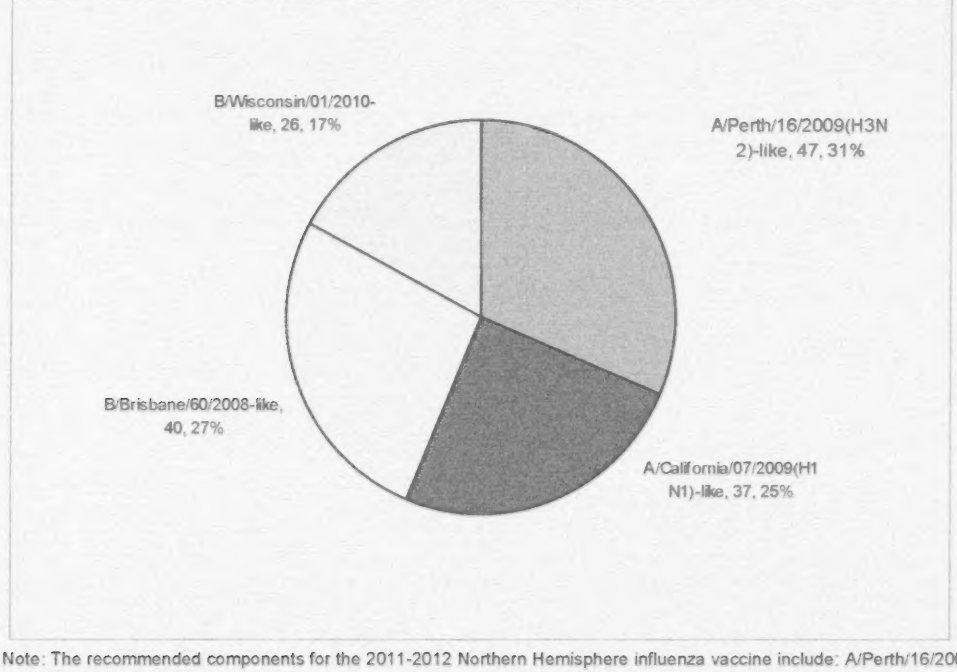
Figure 5. Percent positive influenza tests, compared to other respiratory viruses, Canada, by reporting week, 2011-2012


% positive tests
25
20
15
10
5
0
35 37 39 41 43 45 47 49 51 1 3 5 7 9 11 13 15 17 19 21 23 25 27 29 31 33
2011 Report week 2012
% positive influenza virus
% positive parainfluenza virus
% positive human metapneumovirus
% positive respiratory syncytial virus
% positive adenovirus

Influenza Strain Characterizations

Since the start of the season, the National Microbiology Laboratory (NML) has antigenically characterized 150 influenza viruses (47 A/H3N2, 37 A/H1N1 and 66 B). All 47 A/H3N2 viruses (from BC, AB, SK, ON & QC) are antigenically related to A/Perth/16/2009. All 37 A/H1N1 viruses (from QC & ON) are antigenically related to A/California/07/2009. Forty of the 66 influenza B viruses characterized (from BC, AB, ON, QC & NL) are antigenically related to the vaccine strain B/Brisbane/60/2008 (Victoria lineage). The remaining 26 influenza B viruses (from BC, AB, ON, QC & NB) are antigenically related to the reference virus B/Wisconsin/01/2010-like, which belongs to the Yamagata lineage. (Figure 6)

Figure 6. Influenza strain characterizations, Canada, 2011-2012, N = 150



Note: The recommended components for the 2011-2012 Northern Hemisphere influenza vaccine include: A/Perth/16/2009 (H3N2), A/California/7/2009 (H1N1) and B/Brisbane/60/2008.

Antiviral Resistance

Since the beginning of the season, NML has tested 143 influenza viruses (47 A/H3N2, 35 A/H1N1 and 61 B) for resistance to oseltamivir (by phenotypic assay and/or sequencing) and for resistance to zanamivir (by phenotypic assay) and it was found that all 143 viruses were susceptible to oseltamivir and zanamivir. A total of 80 influenza A viruses (56 H3N2 and 24 H1N1) were tested for amantadine resistance and all 80 were found to be resistant. (Table 3)

Table 3. Antiviral resistance by influenza virus type and subtype, Canada, 2011-2012

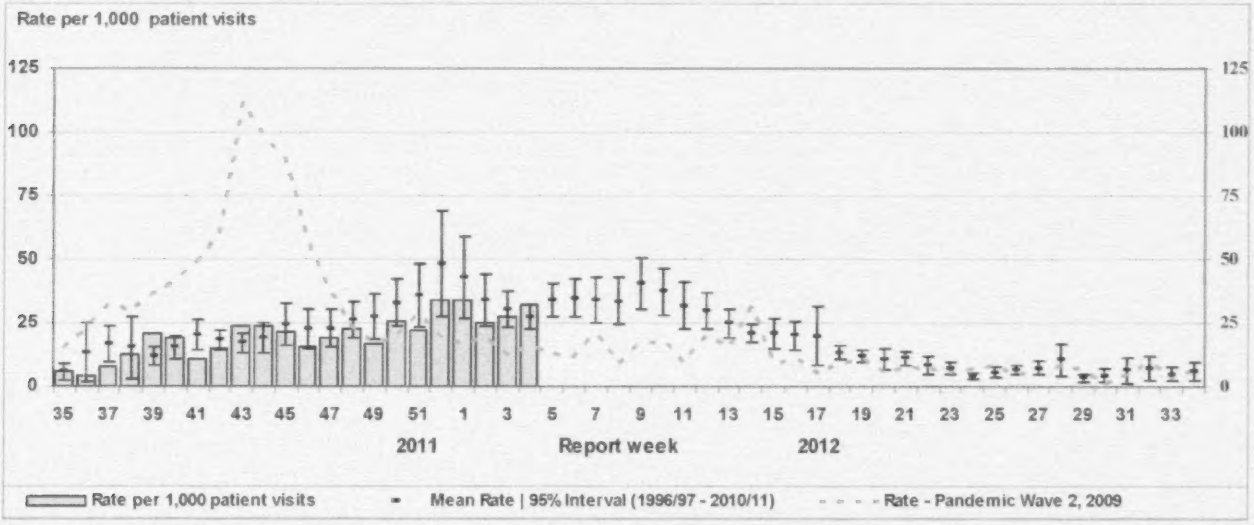
Virus type and subtype	Oseltamivir		Zanamivir		Amantadine	
	# tested	# resistant (%)	# tested	# resistant (%)	# tested	# resistant (%)
A (H3N2)	47	0	47	0	56	56 (100%)
A (H1N1)	35	0	35	0	24	24 (100%)
B	61	0	61	0	NA*	NA*
TOTAL	143	0	143	0	80	80 (100%)

* NA – not applicable

Influenza-like Illness (ILI) Consultation Rate

Although the national ILI consultation rate increased to 32.3 ILI consultations per 1,000 patient visits in week 04, it is still within the expected levels for this time of year (Figure 7). The highest consultation rates this week were observed in children under 5 (68.4/1,000 visits) and those 5 to 19 years old (50.5/1,000).

Figure 7. Influenza-like illness (ILI) consultation rates, Canada, by report week, 2011-2012 compared to 1996/97 through to 2010/11 seasons (with pandemic data suppressed)



Note: No data available for mean rate in previous years for weeks 19 to 39 (1996-1997 through 2002-2003 seasons). Delays in the reporting of data may cause data to change retrospectively.

Severe Illness Surveillance

Paediatric Influenza Hospitalizations and Deaths
In week 04, three new laboratory-confirmed influenza-associated paediatric (16 years of age and under) hospitalizations were reported through the Immunization Monitoring Program Active (IMPACT) network. Two of the hospitalizations were due to influenza A(H3N2) (from AB) and one was due to influenza B (from BC).

To date this season, 39 influenza-associated paediatric hospitalizations have been reported (from BC, AB, SK, ON & QC); 27 (69.2%) were due to influenza A and 12 (30.8%) were due to influenza B. The proportion of cases by age group is as follows: 22.5% among infants <6 months of age; 17.9% among children 6-23 months of age; 40.1% were between 2-4 years; 7.7% were between 5-9 years; and 12.8% were between 10-16 years.

Adult Influenza Hospitalizations and Deaths
In week 04, 19 new laboratory-confirmed influenza-associated adult hospitalizations were reported: 5 in ON, 12 in AB, 1 in NL and 1 hospitalization requiring ICU admission in SK. In addition, two influenza-associated (influenza B) laboratory confirmed deaths were reported (in ON & MB) in week 04 in adults $\geq$ 65 years old.

To date this season, 70 influenza-associated adult hospitalizations have been reported from four provinces (AB, SK, MB & ON). The proportion of cases by age group is as follows: 24.6% were in those 20-44 years of age; 27.5% were in those 45-64 years of age and 47.8% were in those $\geq$ 65 years.

Note: The reason for hospitalization or cause of death does not have to be attributable to influenza in order to be reported. Influenza-associated adult hospitalizations are not reported to PHAC by the following Provinces: BC, QC, & NB. Only hospitalizations that require intensive medical care are reported by SK. ICU admissions are not reported in ON.

International Influenza Updates

WHO: Influenza activity in the temperate regions of the northern hemisphere remains low overall though notable local increases in activity have been reported in North America, the western part of Europe, and northern China. Countries in the tropical zone reported low levels of influenza activity with the exceptions of southern China, Colombia, and Ecuador. Influenza activity in the temperate countries of the southern hemisphere is at inter-seasonal levels. The most commonly detected virus type or subtype throughout the northern hemisphere temperate zone has been influenza A(H3N2) with the exception of China, which is reporting a predominance of influenza B, and Mexico, where influenza A(H1N1)pdm09 is the predominant subtype circulating. In addition to Mexico, some southern states of the USA and Colombia have also reported a predominance of A(H1N1)pdm09 in recent weeks. Nearly all influenza A viruses characterized are antigenically related to the viruses contained in the current northern hemisphere trivalent vaccine; and about half of the small number of influenza B viruses characterized are of the Yamagata lineage, which is not contained in the current vaccine.
World Health Organization influenza update

PAHO: In week 3, influenza activity in North America remained within the expected level for this time of year with the predominant viruses being influenza A(H3N2) in Canada and the United states and influenza A(H1N1)pdm09 in Mexico. In Mexico, as of January 27th, the Ministry of Health reported 1,623 influenza cases and 32 deaths associated with influenza; of which, 90% of the cases and 91% of the deaths were associated with influenza A(H1N1)pdm09. In addition, of the total samples analyzed (n=330) in week 3, the proportion positive for influenza (53%) was similar to the previous week.
In Central America and the Caribbean, influenza activity remained low or within the expected level for this time of year; co-circulation of influenza A(H3N2) and influenza A(H1N1)pdm09 was reported in Costa Rica. In South America, influenza activity and acute respiratory illness activity remained low or within the expected level for this period of time; co-circulation of influenza A(H3N2) and influenza A(H1N1)pdm09 was reported in Colombia and Ecuador.
Pan American Health Organization influenza situation report

United States: In week 3, the CDC reported that 4.9% (175/3,572) of influenza tests were positive. Since October 1, 2011, the CDC characterized 217 influenza viruses: 29 A/H1N1, 160 A/H3N2 and 28 B. Twenty-eight of the A/H1N1 viruses were characterized as A/California/7/2009-like and 1 showed reduced titers with antiserum produced against A/California/7/2009. Of the 160 influenza A/H3N2 viruses that were characterized, 158 were A/Perth/16/2009-like and 2 showed reduced titers with antiserum produced against A/Perth/16/2009. Fourteen influenza B viruses were characterized as B/Brisbane/60/2008-like (B/Victoria lineage) and 14 B viruses belong

to the B/Yamagata lineage. The proportion of outpatient visits for ILI was 1.4%, which is below the national baseline. Regional influenza activity was reported by four states (Colorado, Kentucky, Missouri, and Virginia), eight states reported localized influenza activity (California, Kansas, Massachusetts, Michigan, Montana, New Hampshire, New Jersey and Texas) while the rest reported either sporadic or no activity. One influenza-associated pediatric death which occurred in late October 2011 was reported to CDC during week 3 and was associated with an influenza B virus infection.
Centers for Disease Control and Prevention seasonal influenza report

Europe: In week 4, influenza activity remained at low levels in most countries in the WHO European Region. Consultation rates for ILI and acute respiratory infection (ARI) remain low except in some countries (e.g. Bulgaria, Italy, Kyrgyzstan and Spain). Approximately 29% of sentinel samples tested positive for influenza, which is similar to the previous week. Influenza A(H3N2) accounts for the vast majority of influenza detections in outpatient clinics and hospitals, although sporadic detections of influenza A(H1N1)pdm09 and B viruses are also reported in the Region. Since week 40, 76 influenza viruses have been characterized antigenically: 2 were A/California/7/2009 (H1N1)-like; 66 were A/Perth/16/2009 (H3N2)-like; 2 were B/Florida/4/2006-like (B/Yamagata/16/88 lineage), 2 were B/Bangladesh/3333/2007-like (B/Yamagata/16/88 lineage) and 4 were B/Brisbane/60/2008-like (B/Victoria/2/87 lineage).
EuroFlu weekly electronic bulletin

Human Avian Influenza Updates

No new cases of human A/H5N1 avian influenza infection were reported by the WHO since 24 January, 2012.
WHO Avian influenza situation updates

FluWatch reports include data and information from the following sources: laboratory reports of positive influenza tests in Canada (National Microbiology Laboratory), sentinel physician reporting of influenza-like illness (ILI), provincial/territorial assessment of influenza activity based on various indicators, including laboratory surveillance, ILI reporting, and outbreaks, influenza-associated paediatric and adult hospitalizations, antiviral sales in Canada, and WHO and other international reports of influenza activity.

Abbreviations: Newfoundland/Labrador (NL), Prince Edward Island (PE), New Brunswick (NB), Nova Scotia (NS), Quebec (QC), Ontario (ON), Manitoba (MB), Saskatchewan (SK), Alberta (AB), British Columbia (BC), Yukon (YT), Northwest Territories (NT), Nunavut (NU).

ILI definition for the 2011-2012 season

ILI in the general population: Acute onset of respiratory illness with fever and cough and with one or more of the following - sore throat, arthralgia, myalgia, or prostration which is likely due to influenza. In children under 5, gastrointestinal symptoms may also be present. In patients under 5 or 65 and older, fever may not be prominent.

Definitions of ILI/Influenza outbreaks for the 2011-2012 season

Schools: Greater than 10% absenteeism (or absenteeism that is higher (e.g. >5-10%) than expected level as determined by school or public health authority) which is likely due to ILI. Note: it is recommended that ILI school outbreaks be laboratory confirmed at the beginning of influenza season as it may be the first indication of community transmission in an area.

Hospitals and residential institutions: two or more cases of ILI within a seven-day period, including at least one laboratory confirmed case. Institutional outbreaks should be reported within 24 hours of identification. Residential institutions include but not limited to long-term care facilities (LTCF) and prisons.

Other settings: two or more cases of ILI within a seven-day period, including at least one laboratory confirmed case; i.e. workplace, closed communities.

Influenza Activity Levels Definition for the 2011-2012 season

Influenza Regional Activity levels are defined as:

1 = No activity: no laboratory-confirmed influenza detections in the reporting week, however, sporadically occurring ILI may be reported

2 = Sporadic: sporadically occurring ILI and lab confirmed influenza detection(s) with **no outbreaks** detected within the influenza surveillance region†

3 = Localized: (1) evidence of increased ILI* and
(2) lab confirmed influenza detection(s) together with
(3) **outbreaks** in schools, hospitals, residential institutions and/or other types of facilities occurring in **less than 50% of the influenza surveillance region**†

4 = Widespread: (1) evidence of increased ILI* and
(2) lab confirmed influenza detection(s) together with
(3) **outbreaks** in schools, hospitals, residential institutions and/or other types of facilities occurring **in greater than or equal to 50% of the influenza surveillance region**†

Note: ILI data may be reported through sentinel physicians, emergency room visits or health line telephone calls.

* More than just sporadic as determined by the provincial/territorial epidemiologist.

† Influenza surveillance regions within the province or territory as defined by the provincial/territorial epidemiologist.

We would like to thank all the Fluwatch surveillance partners who are participating in this year's influenza surveillance program.

This report is available on the Public Health Agency website at the following address: http://www.phac-aspc.gc.ca/fluwatch/index.html. Ce rapport est disponible dans les deux langues officielles. Pour en recevoir un exemplaire dans l'autre langue chaque semaine, veuillez communiquer avec Estelle Arseneault, Division de l'immunisation et des infections respiratoires au (613) 998-8862.